

Claims:

1. A pulp carboxylation system comprising
a pulp bleaching stage,
a washer following said pulp bleaching stage,
5 a first mixer following said washer,
a supply of basic material connected to said system whereby said base material
will be mixed by said first mixer,
a second mixer following said first mixer,
a supply of carboxylation chemicals connected to said system after said first mixer
10 whereby said carboxylation chemicals will be mixed by said second mixer,
a first stage reaction chamber following said second mixer,
a third mixer following said reaction chamber,
a supply of stabilizing material connected to said system after said reaction
chamber whereby said stabilizing material will be mixed by said third mixer,
15 a second stage stabilizing chamber following said second mixer.
2. The carboxylation system of Claim 1 in which said reaction chamber is
sized for a reaction time of no more than 15 minutes.
3. The carboxylation system of Claim 1 in which said reaction chamber is
sized for a reaction time of no more than 2 minutes.
- 20 4. The carboxylation system of Claim 1 in which said reaction chamber is
sized for a reaction time of no more than 1 minute.
5. The carboxylation system of Claim 1 in which said reaction chamber is
sized for a reaction time of no more than 30 seconds.
6. The carboxylation system of Claim 1 in which said reaction chamber is
25 sized for a reaction time of no more than 15 seconds.
7. The carboxylation system of Claim 1 in which said pulp bleaching stage is
an extraction stage.
8. The carboxylation system of Claim 7 in which said stabilizing chamber is
a chlorine dioxide bleach tower.

- 9 The carboxylation system of Claim 1 in which said pulp bleaching stage is a chlorine dioxide stage.
- 10 The carboxylation system of Claim 9 in which said stabilizing chamber is a chlorine dioxide tower.
- 5 11. The carboxylation system of Claim 1 in which said stabilizing chamber is a chlorine dioxide bleach tower.
12. The carboxylation system of Claim 1 in which said first mixer is a pump.
13. The carboxylation system of Claim 1 further comprising a pH meter at the exit of said reaction chamber.
- 10 14. The carboxylation system of Claim 1 in which said supply of basic material is selected from the group consisting of sodium hydroxide and sodium carbonate.
15. The carboxylation system of Claim 1 in which said supply of basic material is connected to said first mixer.
- 15 16. The carboxylation system of Claim 1 in which said supply of carboxylation chemicals is a sufficient amount of a primary oxidant selected from the group consisting of hindered heterocyclic oxammonium salts in which the carbon atoms adjacent the oxammonium nitrogen lack .alpha.-hydrogen substitution, the corresponding amines, hydroxylamines, and nitroxides of these oxammonium salts, and mixtures thereof, and a secondary oxidant selected from chlorine dioxide and latent sources of chlorine dioxide in a sufficient amount to induce an increase in carboxyl substitution in the carbohydrate of at least 2 meq/100 g.
- 20 17. The carboxylation system of Claim 1 in which said supply of stabilization chemicals is connected to said second mixer.
- 25 18. The carboxylation system of Claim 1 in which said supply of stabilizing materials are selected from the group consisting of an alkali metal chlorite, a peroxide, an acid, chlorine dioxide, a peracid and mixtures thereof.

19. The carboxylation system of Claim 1 in which said supply of stabilizing materials is selected from the group consisting of a peroxide, an acid, and mixtures thereof.

20. The carboxylation system of Claim 1 in which said stabilizing material is
5 an acid.

21. The carboxylation system of Claim 1 in which said supply of stabilizing materials is connected to said third mixer.